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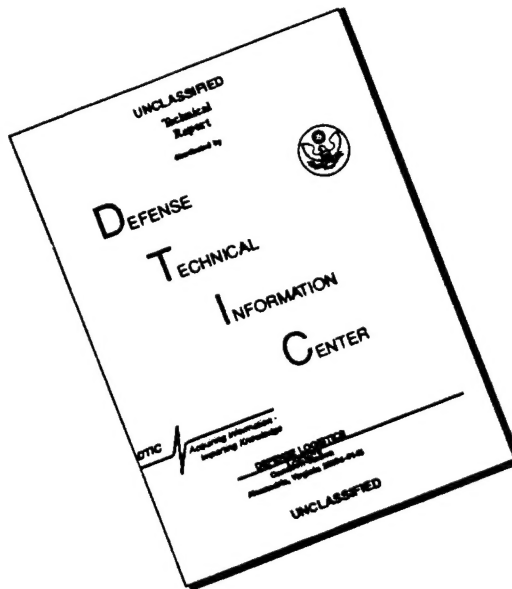
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TELECOMMUNICATIONS AND
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IRIG STANDARD 215-96

ASYNCHRONOUS ASCII EVENT COUNT STATUS CODES

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IRIG STANDARD 215-96

**ASYNCHRONOUS ASCII
EVENT COUNT STATUS CODES**

SEPTEMBER 1996

Prepared by

**TELECOMMUNICATIONS AND TIMING GROUP
RANGE COMMANDERS COUNCIL**

Published by

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1.0 General Description of Standard

This standard describes four ASCII (American Standard Code for Information Interchange) event count status formats to be used to transfer event count status over conventional asynchronous telecommunications circuits. These formats provide event count status information suitable for most computer, dumb terminal, line printer, and remote visual displays. Precise event count status transfer is not an objective of this standard; therefore, there is no attempt to provide greater than 100-millisecond or 1-second resolution for these formats. This standard provides systems engineers and equipment vendors with an IRIG standard for ASCII-formatted event count status transfer which can be used in specifications for the procurement of equipment used on all United States test ranges and other military or civilian facilities.

2.0 General Description of Formats

An overview of the formats is described in the following paragraphs. See figures 1 through 4.

2.1 IRIG CS-511z

The IRIG CS-511z is for use at baud rates ≥ 300 (see figure 1). It is a Time-of-Year format with 1-second resolution and frame length. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

<SOH>I<SP> \pm DDD<SP>HH:MM:SS<SP>#<CR><LF>

where

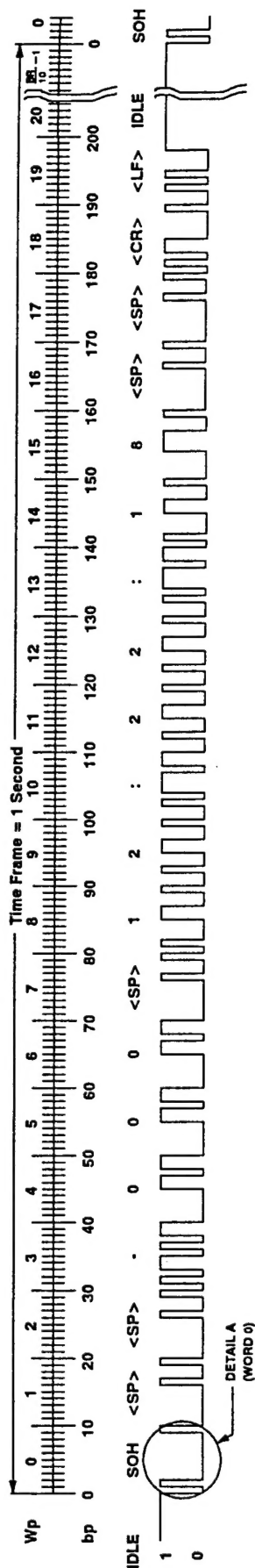
<SOH> = start of header (01₁₆)
I = identification character -- space (20₁₆) is default, any alpha or numeric ASCII character
<SP> = space (20₁₆)
 \pm = the event count sign
DDD = the event count day
HH = the event count hour of the day
<:> = colon (3A₁₆)
MM = the event count minute of the hour
SS = the event count second of the minute
= the event count status -- space (20₁₆) is default, H (48₁₆) if holding
<CR> = carriage return (0D₁₆)
<LF> = line feed (0A₁₆)

The IRIG CS-511z uses the first 200 bits of the 1-second frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 1 second, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.

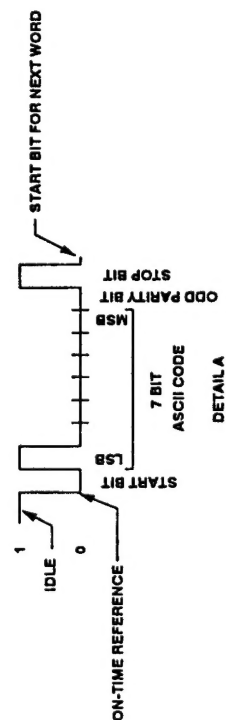
BAUD RATE (BR) ≥ 300

Example: Default ID, Event Count Status is -000 Days, 12 Hrs, 22 Mins, 18 Secs and Counting.



Wp = WORD POSITION
bp = BIT POSITION

LOGIC LEVEL	
1	0
MARK	SPACE
STOP	START
IDLE	N/A



IDENTIFICATION CHARACTER (Wp = 1)
Space <SP> is the default.
Any alpha or numeric ASCII character.

COUNT STATUS (Wp = 17)
Space <SP> is the default.
'H' if the count is Holding.

ZERO COUNT
-000:00:00:00 is Undefined
+000:00:00:00 is Zero Count

Figure 1. ASCII event count status format CS-511z.

2.2 IRIG CS-522z

The IRIG CS-522z is for use at baud rates ≥ 2400 (see figure 2). It is a Time-of-Year format with 100-millisecond resolution and frame length. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

<SOH>I<SP> \pm DDD<SP>HH:MM:SS.S<SP>#<CR><LF>

where

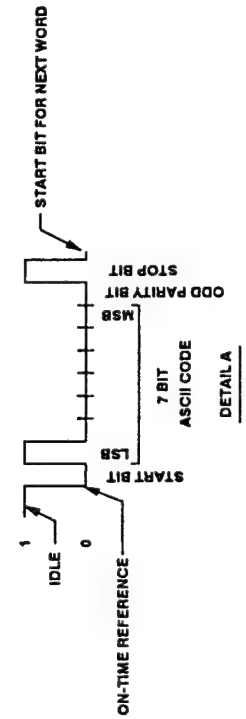
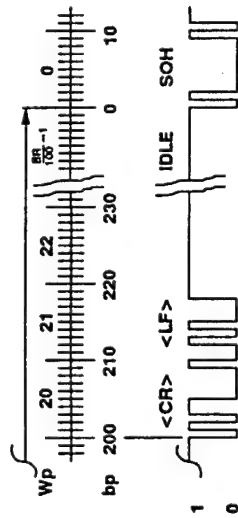
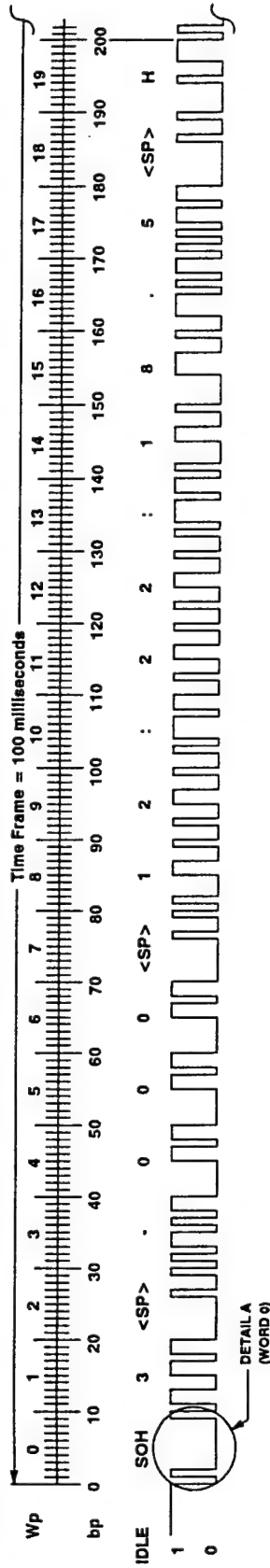
<SOH> = start of header (01₁₆)
I = identification character -- space (20₁₆) is default, any alpha or numeric ASCII character
<SP> = space (20₁₆)
 \pm = the event count sign
DDD = the event count day
HH = the event count hour of the day
<:> = colon (3A₁₆)
MM = the event count minute of the hour
SS.S = the event count second and tenth of second of the minute
{period "." = (2E₁₆)}
= the event count status -- space (20₁₆) is default, H (48₁₆) if holding
<CR> = carriage return (0D₁₆)
<LF> = line feed (0A₁₆)

The IRIG CS-522z uses the first 220 bits of the 100-millisecond frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 100 milliseconds, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.

BAUD RATE (BR) ≥ 2400

Example: ID is 3, Event Count Status is -000 Days, 12 Hrs, 22 Mins, 18.5 Secs and Holding.



Wp = WORD POSITION
bp = BIT POSITION

LOGIC LEVEL	
1	0
MARK	SPACE
STOP	START
IDLE	N/A

IDENTIFICATION CHARACTER (Wp = 1)
Space <SP> is the default.
Any alpha or numeric ASCII character.

COUNT STATUS (Wp = 19)
Space <SP> is the default.
'H' if the count is Holding.

ZERO COUNT
-000:00:00:00.0 is Undefined
+000:00:00:00.0 is Zero Count

Figure 2. ASCII event count status format CS-522z.

2.3 IRIG CS-513z

The IRIG CS-513z is for use at baud rates ≥ 600 (see figure 3). It is a Time-of-Year format with 1-second resolution and frame length. In addition to the event count status, this format has information regarding the predicted time of launch or the actual time of launch if launch has occurred. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

**<SOH>I<SP> \pm DDD<SP>HH:MM:SS<SP>#<SP>ddd<SP>hh:mm:ss.sss<SP>&
<CR><LF>**

where

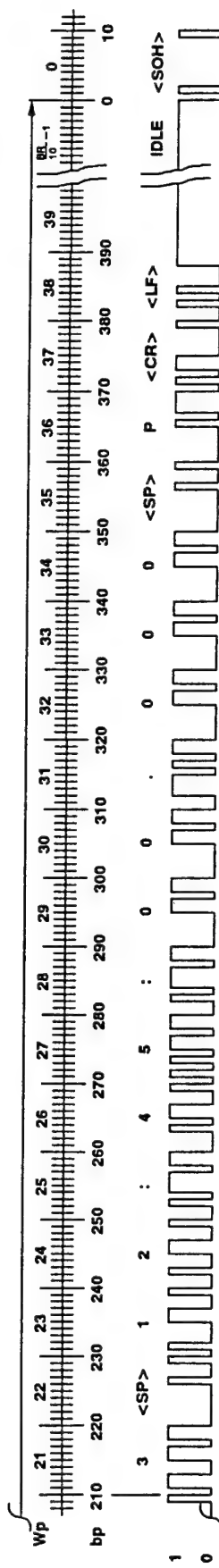
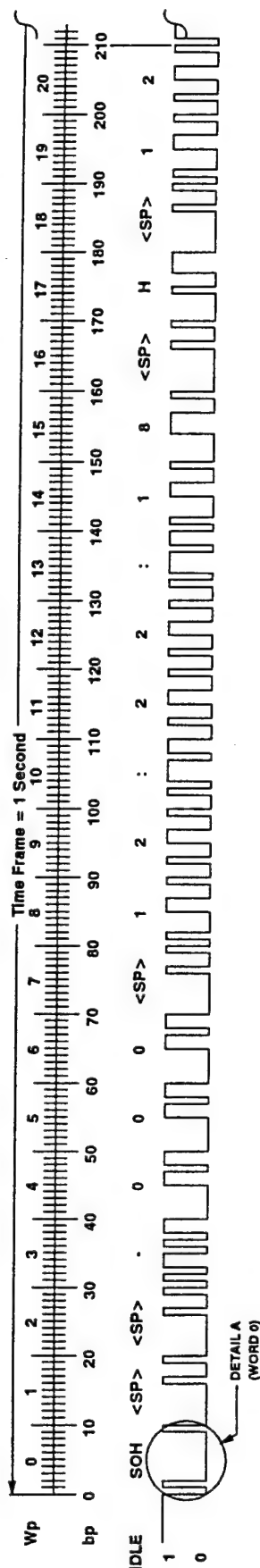
<SOH> = start of header (01_{16})
I = identification character -- space (20_{16}) is default, any alpha or numeric ASCII character
<SP> = space (20_{16})
 \pm = the event count sign
DDD = the event count day
HH = the event count hour of the day
<:> = colon ($3A_{16}$)
MM = the event count minute of the hour
SS = the event count second of the minute
= the event count status -- space (20_{16}) is default, H (48_{16}) if holding
ddd = predicted/actual launch day
hh = predicted/actual launch hour of the day
mm = predicted/actual launch minute of the hour
ss.sss = predicted/actual launch second and milliseconds of the minute {period "." = ($2E_{16}$)}
& = launch time information -- P(50_{16}) predicted, A(41_{16}) actual
<CR> = carriage return ($0D_{16}$)
<LF> = line feed ($0A_{16}$)

The IRIG CS-513z uses the first 390 bits of the 1-second frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 1 second, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.

BAUD RATE (BR) ≥ 600

Example: Default ID, Event Count Status is -000 Days, 12 Hrs, 22 Mins, 18 Secs and Holding. Predicted Launch Time is 123 Days, 12 Hrs, 45 Mins, 00.000 Secs (TOY).



IDENTIFICATION CHARACTER (Wp = 1)
 Space <SP> is the default.
 Any alpha or numeric ASCII character.

COUNT STATUS (Wp = 17)
 Space <SP> is the default.
 'H' if the count is Holding.

ZERO COUNT
 -000:00:00:00 is Undefined
 +000:00:00:00 is Zero Count

Wp = WORD POSITION
 bp = BIT POSITION

LOGIC LEVEL	
1	0
MARK	SPACE
STOP	START
IDLE	N/A

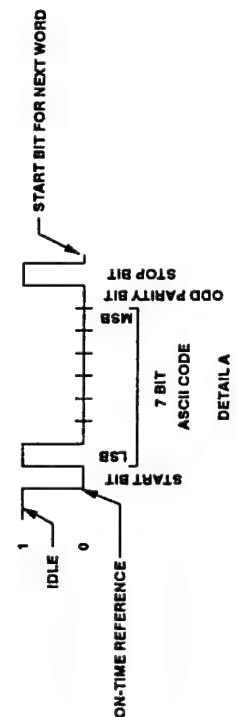


Figure 3. ASCII event count status format CS-513z.

2.4 IRIG CS-524z

The IRIG CS-524z is for use at baud rates ≥ 4800 (see figure 4). It is a Time-of-Year format with 100-millisecond resolution and frame length. In addition to the event count status, this format has information regarding the predicted time of launch or the actual time of launch if launch has occurred. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

**<SOH>I<SP> \pm DDD<SP>HH:MM:SS.S<SP>#<SP>ddd<SP>hh:mm:ss.sss<SP>
&<CR><LF>**

where

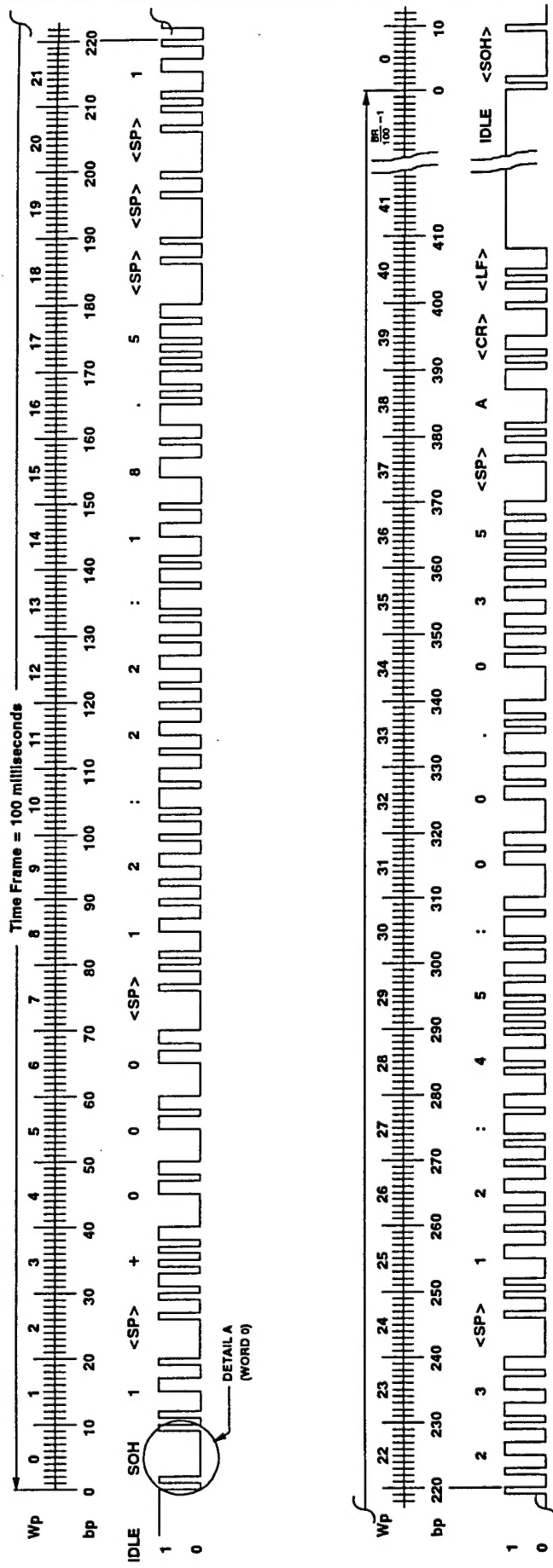
<SOH> = start of header (01₁₆)
I = identification character -- space (20₁₆) is default, any alpha or numeric ASCII character
<SP> = space (20₁₆)
 \pm = the event count sign
DDD = the event count day
HH = the event count hour of the day
<:> = colon (3A₁₆)
SS.S = the event count second and tenth of second of the minute
{period "." = (2E₁₆)}
= the event count status -- space (20₁₆) is default, H (48₁₆) if holding
ddd = predicted/actual launch day
hh = predicted/actual launch hour of the day
mm = predicted/actual launch minute of the hour
ss.sss = predicted/actual launch second and milliseconds of the minute
& = launch time information -- P(50₁₆) predicted, A(41₁₆) actual
<CR> = carriage return (0D₁₆)
<LF> = line feed (0A₁₆)

The IRIG CS-524z uses the first 410 bits of the 100-millisecond frame. The remaining bits are idle (logic level = 1) for the remainder of the frame. The frame length is 100 milliseconds, regardless of the baud rate.

The identification character is an ASCII 'space' character by default, although any alpha numeric ASCII character may be used. The definition or function of the identification character is left to the user. Suggested uses might be identification of a net or network, an event, a test number, or a user number.

BAUD RATE (BR) ≥ 4800

Example: ID is 1, Event Count Status is +000 Days, 12 Hrs, 22 Mins, 18.5 Secs and Counting. Actual Launch Time was 123 Days, 12 Hrs, 45 Mins, 00.035 Secs (TOY).



IDENTIFICATION CHARACTER (Wp = 1)
 Space <SP> is the default.
 Any alpha or numeric ASCII character.

COUNT STATUS (Wp = 19)
 Space <SP> is the default.
 'H' if the count is Holding.

ZERO COUNT
 -000:00:00:00.0 is Undefined
 +000:00:00:00.0 is Zero Count

Wp = WORD POSITION
 bp = BIT POSITION

LOGIC LEVEL	
1	0
MARK	SPACE
STOP	START
IDLE	N/A

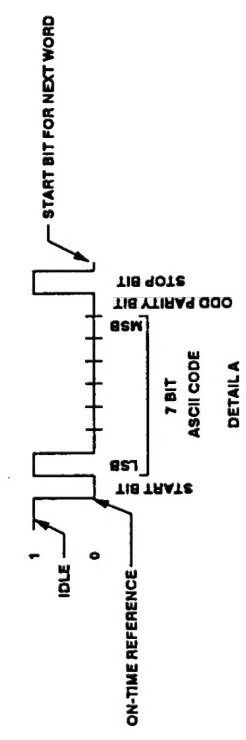


Figure 4. ASCII event count status format CS-524z.

2.5 Word Description

Each ASCII word (character position) contains exactly 10 bits ($b_0 - b_9$).

b_0 = start bit

$b_1 - b_7$ = 7 bit sequence for ASCII character (lsb first)

b_8 = odd parity bit

b_9 = stop bit

2.6 Parity

This standard employs ODD parity only.

2.7 Baud Rates

The baud rates for the four ASCII event count status formats are

CS-511z \geq 300 baud

CS-522z \geq 2400 baud

CS-513z \geq 600 baud

CS-524z \geq 4800 baud

2.8 IRIG CS Format Designation Description

The IRIG CS format and baud rates can be uniquely described by specifying x, y, and z in IRIG CS-5xyz,

where

- x = 1 for 1-second resolution
- = 2 for 0.1-second resolution
- y = 1 for format described in paragraph 2.1
- = 2 for format described in paragraph 2.2
- = 3 for format described in paragraph 2.3
- = 4 for format described in paragraph 2.4
- z = 2 for 300 baud rate
- = 3 for 600 baud rate
- = 4 for 1200 baud rate
- = 5 for 2400 baud rate
- = 6 for 4800 baud rate
- = 7 for 9600 baud rate
- = 8 for 19,200 baud rate

Example: The IRIG CS-5226 describes the ASCII format containing event count status with 100-millisecond resolution and frame length which is transmitted at 4800 baud.

Standard formats are IRIG CS-5112, IRIG CS-5113, IRIG CS-5114, IRIG CS-5225, IRIG CS-5226, IRIG CS-5227, IRIG CS-5228, IRIG CS-5133, IRIG CS-5134, IRIG CS-5135, IRIG CS-5246, IRIG CS-5247, and IRIG CS-5248.